

ABSTRACT OF THE DISCLOSURE

The subject invention relates to the identification of genes involved in the desaturation of polyunsaturated fatty acids at carbon 5 (i.e., " $\Delta^5$ -desaturase") and at carbon 6 (i.e., " $\Delta^6$ -desaturase") and to uses thereof. In particular,  $\Delta^5$ -desaturase may be utilized, for example, in the conversion of dihomo- $\gamma$ -linolenic acid (DGLA) to arachidonic acid (AA) and in the conversion of 20:4n-3 to eicosapentaenoic acid (EPA). Delta-6 desaturase may be used, for example, in the conversion of linoleic (LA) to  $\gamma$ -linolenic acid (GLA). AA or polyunsaturated fatty acids produced therefrom may be added to pharmaceutical compositions, nutritional compositions, animal feeds, as well as other products such as cosmetics.

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